

1.9321
N2L69
copy 2

NORTHERN REGIONAL RESEARCH CENTER

PUBLICATIONS AND PATENTS

January-December 1978

Agricultural Research
Science and Education Administration
U.S. DEPARTMENT OF AGRICULTURE

U.S. DEPT. OF AGRICULTURE
NAT'L AGRIC. LIBRARY
RECEIVED
OCT 4 1978

U.S. DEPARTMENT OF AGRICULTURE
SCIENCE AND EDUCATION ADMINISTRATION
AGRICULTURAL RESEARCH

Organization Directory

Mr. Talcott W. Edminster
Deputy Director for Agricultural
Research, SEA-USDA
Administration Building, USDA
Washington, D.C. 20250

Dr. H. C. Cox
Regional Administrator
USDA-SEA-AR-Western Region
1333 Broadway, Suite 400 ✓
Oakland, California 94612
Telephone: (415) 536-4191

Western Region covers Arizona,
California, Colorado, Hawaii,
Idaho, Montana, Nevada, New
Mexico, Oregon, Utah, Washington,
Wyoming.

Dr. E. L. Kendrick, Acting
Regional Administrator
USDA-SEA-AR-Southern Region ✓
P.O. Box 53326
New Orleans, Louisiana 70153
Telephone: (504) 589-6753

Southern Region covers Alabama,
Arkansas, Florida, Georgia,
Kentucky, Louisiana, Mississippi,
North Carolina, Oklahoma, Puerto
Rico, South Carolina, Tennessee,
Texas, Virgin Islands, Virginia.

Mr. Earl R. Glover
Regional Administrator
USDA-SEA-AR-North Central Region ✓
2000 W. Pioneer Parkway
Peoria, Illinois 61615
Telephone: (309) 671-7176

North Central Region covers
Alaska, Illinois, Indiana, Iowa,
Kansas, Michigan, Minnesota,
Missouri, Nebraska, North Dakota,
Ohio, South Dakota, Wisconsin.

Dr. Steven C. King
Regional Administrator
USDA-SEA-AR-Northeastern Region
Room 333, Building 003
Agricultural Research Center, West
Beltsville, Maryland 20705
Telephone: (301) 344-3418

Northeastern Region covers
Connecticut, Delaware, Maine,
Maryland, Massachusetts, New
Hampshire, New Jersey, New York,
Pennsylvania, Rhode Island,
Vermont, Washington, D.C., West
Virginia.

CONTENTS

	Page
Request for Information	4
Subject Index	5
Author Index	15
Publications	20
Republications	44
Grant Research Publications	45
Unofficial Publications	47
Patents	48
Licensing of Patents	49

Northern Regional Research Center
Agricultural Research
Science and Education Administration
United States Department of Agriculture
1815 North University Street
Peoria, Illinois 61604

REQUEST FOR INFORMATION

Results of research investigations at the Northern Regional Research Center are published regularly in the technical literature, and public-service patents are secured to cover patentable inventions and discoveries (see page 49). As a convenient guide to our publications and patents, a list is published periodically describing the current research and indicating the progress achieved. Further information on any of the developments, as well as earlier technical papers, may be obtained by writing us.

In conformance with the policy of the U.S. Department of Agriculture, Northern Center publications are available to scientists and other specialists, librarians, representatives of the press, and others interested.

Reference to commercial equipment or proprietary products is made as part of the exact experimental conditions. Naming a company or product does not imply approval or

recommendation by the U.S. Department of Agriculture over others not mentioned.

Requests for specific reprints should be by number and addressed to the Northern Regional Research Center. Those titles marked with an asterisk [*] are not available at the Northern Center for distribution.

Most of the publications are in journals that are available in libraries. Photographic copies of most journal articles on research at this Center can be purchased from the National Agricultural Library of the U.S. Department of Agriculture, Beltsville, Maryland 20750.

No publications will be sent regularly in response to foreign requests unless exchange arrangements have been made with the Director of the National Agricultural Library.

Copies of previous lists of publications and patents are available upon request.

January-December 1978

.....

SUBJECT INDEX FOR PUBLICATIONS AND PATENTS

[Numbers marked (*) do not have reprints available at the Northern Regional Research Center for distribution.]

CEREAL GRAINS

General

- Annual crops, a resource from solar energy: 4225*
- Cereal proteins from grain processing: 4223*
- Computer operations, 2-word integer to floating point conversion: 4218*
- Computers in the lipid research laboratory: 4307
- Delayed light emission sensitivity to temperature after a single flash in chloroplasts: 4274
- Electron flow between photosystems I and II, flash polarographic detection of superoxide production as a means of monitoring: 4247
- Energy from agriculture: 4219*
- Fatty acid hydroperoxide, comparison of degradation by cereals and a legume: 4042 republ.
- Hydrocarbon- and rubber-producing crops, evaluation of U.S. plant species: 4304; 4305
- × Industrial energy, cereal grains as a source of: 4188*
- Lipid hydroperoxides and their degradation: 4190*
- Lipoxygenase, commercial and potential utilization of: 4197
- Microstructure research as a basis for engineered food systems: 4201*
- Miracle fruit: 4191*
- Phyllo dulcin, an intensely sweet analogue of: 4239
- Publications and patents, Northern Center, January-December 1977: 4211
- Ring contraction products from a dihydropyranone: 4269
- Sweeteners of natural origin: 4281
- Whole-plant oils, potential new industrial raw materials: 4319

Starch

- Absorbency of polymeric compositions increased by curing:
U.S. 4,116,899
- Absorbent polymers from starch and flour through graft polymerization of acrylonitrile and comonomer mixtures: 4270
- Amylose and dextran in methyl sulfoxide-water, light-scattering and specific refractive increment behavior of: 4303

Biodegradable plastic made from graft poly(methyl acrylate)
 copolymer: 4203
 Cationic starches and flours, low pH preparation of: U.S. 4,127,563
 Electroless copper and copper etchant, evaluation in waste
 treatment: 4202*
 Electroless nickel plating rinse water treatment: 4169*
 Flame-resistant polyurethane foams derived from methyl glucoside
 polyethers: 4251
 Graft polymerization of acrylonitrile and comonomer mixtures,
 absorbent polymers from starch and flour: 4270
 Heavy metal anion removal, preparation and use of insoluble
 cationic starches: 4246
 Heavy metal ions removed from aqueous solutions with insoluble
 crosslinked starch xanthates: U.S. 4,083,783
 Heavy metal removal from industrial wastewaters with insoluble
 starch xanthate: 4271*
 Heavy metal removal processes from plating wastewaters: 4241; 4295*;
 4034* republ.
 Heavy metal removal, starch-based products effective in: 4171*
 Insoluble cationic starches, their preparation and use in heavy
 metal anion removal: 4246
 Insoluble starch xanthate, preparation, stabilization, scaleup, and
 use: 4253
 Insoluble starch xanthate, treatment of complexed copper rinsewaters
 with: 4309
 Kraft bag and filled bond paper, performance of dry processed
 cationic starches and flours in: 4291
 Metal-polysaccharide complexes: 4316; 4317
 Paper additives, xanthated starch amine: U.S. 4,093,510
 Papermaking additives, *O*-carboxymethylstarch amine polyampholytes
 as: 4306
 Polyampholytes with amine and xanthate substituents, characterization
 and application: 4244
 Polymer: 4237*
 Renewable raw material for chemical industry: 4174
 Retrogradation-resistant starches, preparation with immobilized
 amylases: U.S. 4,121,974
 Saponified starch-*g*-polyacrylonitrile copolymers, swelling and
 rheology of: 4245
 Secondary-fiber furnishes, environmental aspects of residual
 surface sizes: 4163
 Waste treatment, use of spent pickle liquor in: 4202*
 Xanthate in starch, acidimetric estimation of: 4267
 Xanthide styrene-butadiene rubbers, effect of humidity and outdoor
 weathering: 4205

Wheat

Alkali-peeled wheats, milling and air classification of: 4194*
Bacillus isolates from refrigerated doughs, wheat flour, and
 wheat: 4310
 Disulfide bonds, key to protein functionality: 4209*
 Fungi and zearalenone occurrence in wheat: 4230
 Lipxygenase, commercial and potential utilization of: 4197
 Molecular weights of γ_2 -, β_6 -, α_7 -, α_8 -, and α_9 -gliadins: 4173
 Triticale for food uses: 4300

Corn, Sorghum, and Other Grains

Corn, aflatoxin control during plant growth and harvest: 4166
 aflatoxin inactivation by aqua ammonia: 4175
 alcohol-soluble reduced glutelin proteins, fractionation and
 characterization of: 4198
 detoxification of aflatoxin by roasting: 4208
 effect of alkaline processing on its amino acids: 4258
 extended preservation trial with ammonia: 4298
 fermented with swine waste, microbiology of: 4254
 grain proteins: 4214*
 ineffectiveness of several fumigants as aflatoxin-inactivating
 agents: 4282
 insect larval activity on developing ears and subsequent
 aflatoxin contamination of seed: 4302
 methylene-*bis*-propionate preservation of: 4182
 origin of high methionine content in *sugary-1* corn
 endosperm: 4314
 preservation of high-moisture corn: 4220*
 production and analysis of citrinin in: 4292
 products, wet-milled, distribution of aflatoxin and/or
 zearalenone in: 4299
 reactions of lipids with ammonia: 4232
 vomitoxin, survey of 1977 crop year preharvest corn for: 4324
 zearalenone distribution in wet-milling fractions: 4278
 Cornmeal/peanut flour blends and their characteristics: 4264
 Oat flour in nonaqueous solvents, density separation of protein
 from: 4229
 Peanut flour/cornmeal blends and their characteristics: 4264
 Sorghum, grain proteins: 4214*
 Sorghums, preparation, composition, and properties of protein
 concentrate: 4206
 Wild rice, as substrate for mycotoxin production: 4164
 history, current production, and use: 4290*
 processing, composition of a byproduct of: 4279
 protein quality of: 4207
 vitamins and minerals of: 4276

Fermentative Conversion and Microbiology

- Activated sludge in the presence of methanol, biopolymer formation by: 4266
- Aflatoxin B₁ and G₁ production in developing *Zea mays* kernels: 4221*
- Aflatoxin-contaminated agricultural commodities, detoxification of: 4184*; 4208
- Aflatoxin-contaminated corn, detoxification by roasting: 4208
- Aflatoxin contamination of seed from insect larval activity on developing corn ears: 4302
- Aflatoxin control during plant growth and harvest of corn: 4166
- Aflatoxin in corn, ineffectiveness of several fumigants as inactivating agents: 4282
- Aflatoxin inactivation in corn by aqua ammonia: 4175
- Aflatoxin production on different agricultural commodities, factors affecting: 4293*
- Aspergillus awamori*, production of α -galactoside from: 4158
- Aspergillus flavus*, incidence of airborne spores in cornfields of five states: 4227
- Bacillus* isolates from refrigerated doughs, wheat flour, and wheat: 4310
- Bacillus popilliae* growing in batch and continuous cultures, characteristics of constituent substrains of: 4226
- Bacillus thuringiensis* paraspore, toxicity to Japanese beetle larvae: 4216*
- Citrinin in corn, production and analysis of: 4292
- Corn fermented with swine waste, microbiology of: 4254
- Corn, methylene-bis-propionate preservation of: 4254
- Dextran bibliography, research literature and patents, 1861-1976: 4242
- Extracellular microbial polysaccharide-polyelectrolytes, properties and applications: 3648* republ.
- Feedlot wastes, a chemical and microbial profile: 4172
- Fungal deterioration and related phenomena in cereals, legumes, and oilseeds: 4321
- Fungi and zearalenone occurrence in wheat: 4230
- Gibberella zeae* and zearalenone occurrence in wheat: 4230
- Guinea pigs given sterigmatocystin or aflatoxin: 4180*
- Hexosamine biosynthesis and accumulation by fungi in liquid and solid media: 147-G*
- High-moisture corn treated with ammonia in preservation trial to control microbial deterioration: 4298
- Immobilized amylases, preparation of retrogradation-resistant starches with: U.S. 4,121,974
- Microbial polysaccharides, production of: 4256*
- Microorganisms, sources and management for the development of a fermentation industry: 3361* republ.
- Mycotoxin-contaminated grain, use in ethanol fermentation process: 4296*
- Ochratoxin A, bioproduction in submerged culture: 4323
- Patent disposition of microorganisms, ARS: 4257
- Patulin: 4168

- Penicillin, laboratory-scale production in submerged cultures by
Penicillium notatum: 172* republ.
- Penicillin, production in surface cultures: 171* republ.
- Penicillium stoloniferum* mycoviruses, influence of carbon-nitrogen
 nutrition upon replication: 4272
- Phycomyces nitens*, zygosporangium and zygospore formation in: 4156
- Polysaccharides from two black yeast-like fungi, rheological and
 other physical characteristics of: 4224
- Pseudomonas delafieldii*, L-serine dehydratase production by: 4255
- Pulvinula tetraspora* (Pezizales:Ascomycetes), apothecial ontogeny
 in: 4157
- Retrogradation-resistant starches, preparation with immobilized
 amylases: U.S. 4,121,974
- Rhizobia, acetylene reduction activity in free-living cultures of: 4181
- RNA polymerase from *Bacillus thuringiensis* and *Escherichia coli*,
 inhibition by β -exotoxin: 4236
- Saccharomyces cerevisiae*, aromatic compounds and sugars in
 flocculation of: 4235*
- Saccobolus* species from Michigan: 4204
- Solid state fermentation: 4273*
- Toxic microorganisms panel, UJNR, introduction: 4154*
- Toxic microorganisms panel, UJNR, welcoming remarks: 4153*
- Trichothecenes, occurrence and toxicoses: 4234
- Vomitoxin, survey of 1977 crop year preharvest corn for: 4324
- Wild rice as substrate for mycotoxin production: 4164
- Xanthan gum, separation by differing pyruvate content by fractional
 precipitation with alcohol: 4259
- Xanthan gum, synthetic media for production in 20-liter fermentors:
 4263
- Zearalenone, assay methods for and natural occurrence: 4167
- Zearalenone distribution in wet-milling fractions from contaminated
 corn: 4278
- Zygorhynchus* zygosporangium and zygospore: 4231

OILSEEDS

General

- Analysis of fats and oils: 4326
- Annual crops, a resource from solar energy: 4225*
- cis* and *trans* Methyl 8- and 13-octadecenoate-d₂, synthesis of: 4313
- Computer operations, 2-word integer to floating point conversion: 4218*
- Computers in the lipid research laboratory: 4307
- Delayed light emission sensitivity to temperature after a single flash
 in chloroplasts: 4274
- Di-, tetra-, and hexadeuterated 11-octadecenoates, synthesis of: 4312
- Electron flow between photosystems I and II, flash polarographic
 detection of superoxide production as a means of monitoring: 4247

- ✕ Energy from agriculture: 4219*
- Engineered food systems, microstructure research as a basis for: 4201*
- Fatty acid hydroperoxide, comparison of degradation by cereals and a legume: 4042 republ.
- Fats and oils, analysis of: 4326
- Hydrocarbon- and rubber-producing crops, evaluation of U.S. plant species: 4304; 4305
- Hydrogen sulfide adducts of methyl *trans,trans*-9,11-octadecadienoate: 4327
- Lipid hydroperoxides and their degradation: 4190*
- Lipoxygenase, commercial and potential utilization of: 4197
- Metabolism of linoleate vs linoelaidate in the laying hen: 4179
- Methyl *cis*-9-octadecenoate-14,14,15,15,17,18-d₆, synthesis of: 4311
- Methyl 9(10)-formylstearate, conversion to carboxymethylstearate: 4177
- Methyl *trans,trans*-9,11-octadecadienoate, hydrogen sulfide adducts of: 4327
- Publications and patents, Northern Center, January-December 1977: 4211
- Scanning electron microscopy of marine antifouling paint films: 4294*
- Silver resin chromatographic separation of methyl *cis*- and *trans*-mono- and dihydroxy fatty esters: 4249
- Silver resin chromatography, separation of saturated, unsaturated, and acetylenic fatty acid isomers by: 4248
- Vegetable oil, flavor score correlation with pentanal and hexanal contents: 4159
- Whole-plant oils, potential new industrial raw materials: 4319

Linseed Oil

- Autoxidized lipids, methyl oleate and linoleate, HPLC of: 4243
- Dienoic fatty acids in mixtures, double bond analysis of: 4213
- High-pressure liquid chromatography of autoxidized lipids: methyl oleate and linoleate: 4243
- Linseed oil films, drier composition and yellowing of: 4183
- Linseed oil for industrial products, overview of research: 4192*
- Linseed oil, potential industrial products from: 4193*
- Optical brighteners, their effect on yellow appearance of linseed oil paint: 4268
- Poly(vinyl chloride), 9,9(10,10)-*bis*(acetoxymethyl)octadecanoate esters as plasticizers for: 4212
- Tetrafluoroethylene adduct of conjugated fatty acids, alkyd resins modified with: 4176
- Triglyceride oil-derived water-dispersible urethane resin coatings: U.S. 4,094,838

Soybean Oil

- Autoxidized lipids, methyl oleate and linoleate, HPLC of: 4243

Converting elemental phosphorus to acetone insolubles in crude oil: 4233
 Copper catalysis, effect of pressure in selective hydrogenation: 4196
 Crude oil, factor for converting elemental phosphorus to acetone insolubles: 4233
 Dienoic fatty acids in mixtures, double bond analysis of: 4213
 Flavor and oxidative stability of hydrogenated and unhydrogenated soybean oils, effects of antioxidants: 4178
 Flavor problems in usage of soybean oil and meal: 4262
 High-pressure liquid chromatography of autoxidized lipids, methyl oleate and linoleate: 4243
 Laboratory-scale continuous hydrogenation: 4187
 Lecithin: 4189*
 Methyl oleate hydroperoxides, thermal decomposition of and identification of volatile components by GC-MS: 4260
 Oil quality, effect of refining and degumming methods on: 4161
 Pentanal and hexanal contents of vegetable oil, flavor score correlation with: 4159
 Phosphorus and iron removal by commercial degumming: 4160
 Polyunsaturates catalyzed by polymer-complexed $\text{Cr}(\text{CO})_3$ catalysts, *cis*-bond-producing hydrogenation of: 4250
 Poly(vinyl chloride), 9,9(10,10)-*bis*(acetoxymethyl)octadecanoate esters as plasticizers for: 4212
 Primary plasticizers for polyvinylchloride, acetoxymethyl derivatives of polyunsaturated fatty triglycerides as: U.S. 4,083,816
 Primary plasticizers for polyvinylchloride, alkyl 9,9(10,10)-*bis*(acyloxymethyl)octadecanoates as: U.S. 4,093,637; U.S. 4,124,558
 Prooxidants and phospholipids, effect of degumming methods on removal of: 4162
 Rhodium catalyst, low-pressure hydroformylation of methyl oleate with: 4280
 Soybean industry, soybean oil the ugly duckling of: 4210*
 Triglyceride oil-derived water-dispersible urethane resin coatings: U.S. 4,094,838

Soybean Meal and Protein

Biochemical changes in soybeans: maturation, postharvest storage and processing, and germination: 4320
 Exported soybeans, microbiological study of: 4275
 Flavor problems in usage of soybean oil and meal: 4262
 γ -Glutamyl dipeptide content in soy protein products and other commodities: 4228
 Lipoxxygenase, commercial and potential utilization of: 4197
 Oligosaccharides in soybeans determined by HPLC: 4170
 Phosphatidylcholines, oxygenated fatty acid constituents of: 4043 republ.
 Phytic acid removal by a lipid protein concentrate process: 4185

- Protein resources, food science and technology problems affecting properties and processing of: 4222*
- Protein utilization in food systems: 4297
- Soy extract or cysteine- FeCl_3 catalyzes formation of *trans*-12,13-epoxy-9-hydroperoxy-*trans*-10-octadecenoic acid from 13-L-hydroperoxy-*cis*-9,*trans*-11-octadecadienoic acid: 4199
- Ultrasonic peptization of soybean proteins from autoclaved flakes, alcohol-washed flakes, and commercial samples: 4265

Fermentative Conversion and Microbiology

- Aflatoxin formation on 16 soybean varieties: 4238
- Exported soybeans, microbiological study of: 4275
- Fungal deterioration and related phenomena in cereals, legumes, and oilseeds: 4321
- Microorganisms, sources and management for the development of a fermentation industry: 3361* republ.
- Mycotoxin-contaminated grain, use in the ethanol fermentation process: 4296*
- Sclerotinia sclerotiorum*, evaluation as potential mycotoxin producer on soybeans: 4308
- Soybean milk yoghurt, method of producing: U.S. 4,066,792
- Soyidli fermentation, studies on: 381-F

HORTICULTURAL AND SPECIAL CROPS

General

- Annual crops, a resource from solar energy: 4225*
- Cholesterol, effect on in vitro suspension tissue cultures of *Costus speciosus*, *Dioscorea floribunda*, *Solanum aviculare*, and *Solanum xanthocarpum*: 378-F
- Computer operations, 2-word integer to floating point conversion: 4218*
- Computers in the lipid research laboratory: 4307
- Delayed light emission sensitivity to temperature after a single flash in chloroplasts: 4274
- Electron flow between photosystems I and II, flash polarographic detection of superoxide production as a means of monitoring: 4242
- Energy from agriculture: 4219*
- Hydrocarbon- and rubber-producing crops, evaluation of U.S. plant species: 4304; 4305
- Lipid hydroperoxides and their degradation: 4190*
- Meloidogyne incognita*, temperature-based prediction of egg-mass production by: 4315
- Microstructure research as a basis for engineered food systems: 4201*
- Miracle fruit: 4191*

- Papaver rhoeas* Linn., production of opium alkaloids from in vitro tissue culture of: 377-F
- Papaver somniferum* Linn., production of free ascorbic acid and effect of exogenous ascorbic acid and tyrosine on major opium alkaloid production from in vitro tissue culture of: 380-F
- Publications and patents, Northern Center, January-December 1977: 4211
- Salvia plebeia* seed, a secoisolariciresinol branched fatty diester from: 4155
- Sauerkraut, determination of salt content by cation exchange: 4240
- Trigonella foenum-graecum* Linn., flavonoids from in vitro seedling callus culture of: 379-F

Oilseeds

- Analysis of fats and oils: 4326
- Brassica napus* pollen, 6-D-glucopyranosyl fatty acid esters from: 4252
- Brassica napus* pollen, isolation of brassins by extraction of: 4318
- Cyanolipids and cyanolipid-containing seed oils, ^{13}C nuclear magnetic resonance spectroscopy of: 4261
- Cyclopropene fatty acids of selected seed oils from Bombacaceae, Malvaceae, and Sterculiaceae: 4200
- Glucosinolates in cruciferous plants: 4195*
- Jajoba liquid and solid waxes, physical and chemical properties: 4287
- Jajoba nuts harvested at different geographical regions, correlation between density and oil content: 4285
- Jajoba oil components, separation and structure determination by HPLC and GC-MS: 4283
- Jajoba oil from nuts harvested at different geographical regions, composition of: 4286
- Jajoba oil, sulfurized, as extreme-pressure lubricant: 4288
- Jajoba wax and its relationship to polyethylene, crystallographic study of: 4284
- Jajoba wax, paraffin, polyethylene, and polypropylene: hardness test for wax formulations from: 4289
- Palmitoleic acid in *Roureopsis obliquifoliata* seed oil: 4325
- Polyunsaturated fatty acids, structural analysis of: 4217*
- Rape pollen, isolation of brassins by extraction of: 4318
- Roureopsis obliquifoliata* (Connaraceae) seed oil, palmitoleic acid in: 4325
- Trivernolin, direct analysis by HPLC: 4186
- × Whole-plant oils, potential new industrial raw materials: 4319

Pulping Crops

- Crotalaria juncea*, annual source of papermaking fiber: 4165
- × Kenaf, a practical fiber resource: 4215

Kenaf, cubing increases density of: 4277

Kenaf for pulp, bale storage of: 4322

Papermaking plants, their identification and pulping, bleaching,
and papermaking characteristics: 4301

January-December 1978

.....

AUTHOR INDEX FOR PUBLICATIONS AND PATENTS

A

- Aalund, O.: 4323
- Abbott, T. P.: 4203
- Adams, G. L.: 4302
- Adamson, W. C.: 4322
- Adlof, R. O.: 4311; 4313
- Akolkar, P. N.: 381-F
- Anderson, R. A.: 4208; 4264; 4279;
4290*; 4299; 4300
- Awl, R. A.: 4250

B

- Bagby, M. O.: 4165; 4215; 4277;
4301; 4322
- Bagley, E. B.: 4158; 4170; 4208;
4264
- Baker, F. L.: 4294*
- Bell, E. W.: 4176
- Bennett, G. A.: 4278; 4299
- Beuchat, L. R.: 4227
- Bhandari, S. D.: 381-F
- Bietz, J. A.: 4209*
- Bitner, E. D.: 4307
- Black, L. T.: 4160; 4170; 4182;
4232; 4233; 4298
- Bocan, B. J.: 4278
- Bohannon, M. B.: 4200
- Bookwalter, G. N.: 4264; 4297
- Booth, G. D.: 4180*
- Bothast, R. J.: 4182; 4203; 4220*;
4227; 4275; 4298; 4321; 4324
- Boundy, J. A.: U.S. 4,121,974
- Brekke, O. L.: 4175; 4194*; 4232;
4282; 4298
- Buchanan, R. A.: 4205; 4267; 4304;
4305; 4319
- Bulla, L. A., Jr.: 4226

- Burbridge, K. A.: 4308; 4324
- Burbridge, L. H.: 4194*
- Burr, R. C.: 4270
- Burton, K. A.: 4224; 4263
- Butterfield, R. O.: 4213; 4218*;
4307

C

- Cadmus, M. C.: 4224; 4256*; 4263
- Calvert, O. H.: 4221*
- Carlson, D. G.: 4315
- Carr, M. E.: 4244; 4306; U.S.
4,093,510
- Catsimpoolas, N.: 4222*
- Cavins, J. F.: 4228; 4258
- Cheng, W. C.: 4306
- Ciegler, A.: 4164; 4168; 4184*;
4234; 4292; 4308; 4324
- Ciegler, J.: 4308
- Circle, S. J.: 4222*
- Clark, T. F.: 4165; 4322
- Cluskey, J. E.: 4223*; 4229
- Cochran, T. W.: 147-G*
- Coghill, R. D.: 171* republ.;
172* republ.
- Conway, H. F.: 4208
- Crowell, C. D.: 4181; 4254
- Cull, I. M.: 4304; 4305; 4319
- Cunningham, R. L.: 4165; 4322
- Cysewski, S. J.: 4180*

D

- DaVia, D. J.: 4277
- Davis, E. N.: 4266
- DeJarlais, W. J.: 4312
- DeMarini, D. M.: 4272

Dennenberg, R. J.: 4203
 • Detroy, R. W.: 4272
 Dick, W. E., Jr.: 4239
 • Dintzis, F. R.: 4303
 Doane, W. M.: 4169*; 4174; 4237*;
 • 4245; 4246; 4270; 4309; U.S.
 4,083,783; U.S. 4,116,899
 Donaldson, G. L.: 4258
 Dufek, E. J.: 4177
 Dupuy, H. P.: 4159
 • Dutton, H. J.: 4187; 4196; 4210*;
 4213; 4262; 4307; 4326

E

Ellis, J. J.: 4231
 • Emken, E. A.: 4179; 4197; 4248;
 4249; 4311; 4312; 4313
 Emswiler, B. S.: 4227
 Ernst, J. O.: 4307
 Evans, C. D.: 4159; 4160; 4233

F

• Fanta, G. F.: 4245; 4270; U.S.
 4,116,899
 Fellers, D. A.: 4223*
 Fennell, D. I.: 4302
 Flegler, S. L.: 4156; 4231
 Flink, J.: 4222*
 Ford, J. R.: 4185
 • Frankel, E. N.: 4243; 4250; 4260;
 U.S. 4,083,816
 Friedrich, J. P.: 4178; 4196;
 4250; 4280

G

• Gardner, H. W.: 4190*; 4199; 4042
 republ.; 4043 republ.
 • Gast, L. E.: 4176; 4183; 4192*;
 4193*; 4268; 4327; U.S. 4,094,838
 Goheen, G. E.: 4159
 Goss, J. R.: 4277
 Govindjee: 4274
 Grove, M. D.: 4252; 4318*

Gumbmann, M. R.: 4207
 Guthrie, W. D.: 4302

H

Hagemann, J. W.: 4287
 Hald, B.: 4323
 Hamerstrand, G. E.: 4163; 4291
 Hanrahan, R. F., Jr.: 4181
 Hartman, J. C.: 4248
 Hartman, W. E.: 4222*
 Hatfield, E. E.: 4182; 4220*
 Haynes, W. C.: 3361* republ.
 Heakin, A. J.: 4161; 4162; 4233
 Heath, H. D.: 4163
 Hesseltine, C. W.: 4153*; 4154*; 4164;
 4166; 4207; 4230; 4231; 4238;
 4273*; 4275; 4276; 4293*; 4308;
 3361* republ.; U.S. 4,066,792
 • Hodge, J. E.: 4239
 Hofreiter, B. T.: 4163; 4244; 4291;
 U.S. 4,121,974
 Hooper, G. R.: 4156; 4157
 Hrubant, G. R.: 4172
 Hsieh, D.: 4222*
 Huebner, F. R.: 4173; 4209*

I

• Inglett, G. E.: 4191*; 4223*;
 4281

J

Jackson, L. K.: 4292
 Jacobson, M.: 4318*
 Jasberg, B. K.: 4253; 4271*
 Jeanes, A.: 4224; 4242; 3648* republ.
 Jensen, A. H.: 4324
 Johnson, D. E.: 4236
 Johnson, M. G.: 4227
 Johnston, A. E.: 4213
 Jursinic, P. A.: 4247; 4274

K

Kanda, H.: U.S. 4,066,792
 Kaneshiro, T.: 4181
 Karel, M.: 4222*
 Kenney, H.: 4318*
 Khanna, P.: 377-F; 378-F; 379-F;
 380-F
 Khanna, R.: 380-F
 Kleiman, R.: 4186; 4199; 4200;
 4325; 4043 republ.
 Knowles, P. F.: 4277
 Knutson, C. A.: 4259; 4263
 Koritala, S.: 4178; 4196
 Kozempel, M.: 4318*
 Kronstein, M.: 4294*
 Kwolek, W. F.: 4183; 4221*; 4302

L

Lagoda, A. A.: 4263
 Lancaster, E. B.: 4175
 Lanser, A. C.: 4179
 Lillehoj, E. B.: 4166; 4180*;
 4221*; 4296*; 4302; 4323
 Lindenfelser, L. A.: 4164
 List, G. R.: 4159; 4160; 4161;
 4162; 4178; 4233

M

McBrien, J.: 4205
 McGhee, J. E.: 4158
 Mandava, N.: 4252; 4318*
 Manot, S. K.: 378-F
 Martinez, W. H.: 4222*
 Matthees, D.: 4318*
 Mikolajczak, K. L.: 4261
 Miller, D. L.: 4188*; 4219*;
 4225*
 Miller, W. R.: 4212; 4313; U.S.
 4,093,637; U.S. 4,124,558
 Mills, F. D.: 4269
 Miwa, T. K.: 4283; 4284; 4285;
 4286; 4287; 4288; 4289
 Mounts, T. L.: 4160; 4161; 4162;
 4178; 4179; 4196; 4233

Moyer, A. J.: 171* republ.; 172*
 republ.
 Mustakas, G. C.: 4185

N

Nakamura, L. K.: 4254; 4257
 Navickis, L. L.: 4253; 4271*; 4279
 Neff, W. E.: 4243; 4260
 Nelson, G. E. N.: 4255
 Nielsen, H. C.: 4223*

O

O'Donnell, K. L.: 4156; 4157; 4204;
 4231
 Orton, W. L.: 4235*
 Otey, F. H.: 4205; 4251; 4304;
 4305; 4319

P

Parekh, L. J.: 381-F
 Paulis, J. W.: 4198; 4214*; 4314
 Peplinski, A. J.: 4175; 4298
 Peterson, R. E.: 4255
 Pfeffer, P. E.: 4252
 Pfeifer, V. F.: 4194*
 Phillips, B. S.: 4163; 4291; U.S.
 4,127,563
 Pierson, M. D.: 4227
 Pittsley, J. E.: 4224; 4263
 Plattner, R. D.: 4155; 4186; 4283
 Pomeranz, Y.: 4223*
 Powell, R. G.: 4155
 Princen, L. H.: 4294*
 Pryde, E. H.: 4212; 4250; U.S.
 4,083,816; U.S. 4,093,637; U.S.
 4,124,558

R

Rackis, J. J.: 4320
 Rakoff, H.: 4183; 4249; 4268
 Ramakrishnan, C. V.: 381-F

Rankin, J. C.: 4163; 4291; U.S.
4,127,563
Rao, G. S.: 381-F
Rayford, W. E.: 4169*; 4171*;
4202*; 4246; 4271*; 4309; 4034*
republ.
Rendleman, J. A.: 4316; 4317
Rha, C-K.: 4222*
Rhodes, R. A.: 4172
Richard, J. L.: 4180*
Riser, G. R.: 4212
Roberts, R. L.: 4223*
Rogers, R. F.: 4230; 4275; 4310;
4324
Rohwedder, W. K.: 4307; 4327
Rothfus, J. A.: 4288; 4315
Rothore, A. K.: 378-F
Russell, C. R.: 4205; 4244; 4245;
4246; 4251; 4270; 4304; 4305;
4319

S
Sanderson, J.: 4258; 4314
Sandford, P. A.: 4224; 4259
Saunders, R. M.: 4223*
Schmutz, R. D.: 4185
Schneider, W. J.: U.S. 4,094,838
Schoen, H.: 4222*
Scholfield, C. R.: 4187; 4213;
4243
Schulte, M. I.: 4163
Schwab, A. W.: 4327
Selke, E.: 4260
Sessa, D. J.: 4189*; 4042 republ.;
4043 republ.
Sexson, K. R.: 4173; 4300
Sharma, G. L.: 377-F; 378-F; 379-F
Sharma, M.: 380-F
Sharpe, E. S.: 4216*; 4226
Sheeley, R.: 4302
Shepherd, A. D.: 4223*
Shotwell, O. L.: 4167; 4230; 4238;
4278
Silman, R.: 4158
Simpson, T. D.: 4284
Sinskey, A.: 4222*
Slodki, M. E.: 4256*

Sloneker, J. H.: 4172
Smiley, K. L.: U.S. 4,121,974
Smith, C. R., Jr.: 4217*
Snyder, J. M.: 4187
Sparks, A. N.: 4302
Spencer, G. F.: 4232; 4252; 4283;
4286; 4325
Steffens, G. L.: 4318*
Still, P. E.: 4272
Stringfellow, A. C.: 4194*; 4282;
4300
Swain, E. W.: 4207; 4276
Swanson, C. L.: 4267

T

Tannenbaum, S.: 4222*
Taylor, N. W.: 4235*; 4245
Thomson, P. H.: 4285
Thurston, J. R.: 4180*
Tobin, R.: 4303
Tookey, H. L.: 4195*
Turner, C. R.: 4248

U

Uddin, A.: 379-F

V

Vandegraft, E. E.: 4238; 4278
VanEtten, C. H.: 4195*; 4240
Vercellotti, J. R.: 147-G*
Vesonder, R. F.: 4324

W

Wade, K.: 4186
Wadsworth, J. I.: 4159
Wall, J. S.: 4173; 4198; 4209*;
4214*; 4223*; 4229; 4258; 4300;
4314
Wang, D. I. C.: 4222*
Wang, H. L.: 4207; 4276; U.S.
4,066,792

Wang, L. C.: 4228; 4265
 Warner, K.: 4159; 4161; 4178;
 4264
 Warthen, J. D., Jr.: 4252; 4318*
 Watson, P. R.: 4224; 4259
 Watson, S. A.: 4278
 Weisleder, D.: 4199; 4243; 4261;
 4043 republ.
 White, G. A.: 4322
 Widstrom, N. W.: 4302
 Wilham, C. A.: 4251
 Wilson, L. L.: 4182

Wing, R. E.: 4169*; 4171*; 4202*;
 4241; 4246; 4253; 4271*; 4295*;
 4309; 4034* republ.; U.S. 4,083,783
 Wolf, B. A.: 4277
 Wolf, D. J.: 4307
 Wolf, W. J.: 4189*; 4201*; 4222*;
 4228
 Worley, J. F.: 4252; 4318*
 Wu, Y. V.: 4173; 4206; 4223*;
 4229; 4300

Z

Zuber, M. S.: 4221*

42/352

January-December 1978

.....

PUBLICATIONS

[Publications marked with an asterisk (*) are not available for distribution at the Northern Regional Research Center. When requesting reprints, please order by number. Use your zip code.]

- 4153* • Welcoming Remarks
C. W. Hesseltine
In "Mycotoxins in Human and Animal Health," eds. J. V. Rodricks, C. W. Hesseltine, and M. A. Mehlman, Proc. Conf., College Park, Md., October 4-8, 1976, pp. 3-5. 1977
- 4154* • Introduction (to session on zearalenone)
C. W. Hesseltine
In "Mycotoxins in Human and Animal Health," eds. J. V. Rodricks, C. W. Hesseltine, and M. A. Mehlman, Proc. Conf., College Park, Md., October 4-8, 1976, pp. 341-344. 1977
- 4155 • A Secoisolariciresinol Branched Fatty Diester from
Salvia plebeia Seed
R. D. Plattner and R. G. Powell
Phytochemistry 17(1): 149-150. 1978
- 4156 • Zygosporangium and Zygosporangium Formation in *Phycomyces nitens*
K. L. O'Donnell, S. L. Flegler,¹ and G. R. Hooper¹
(¹Center for Electron Optics, Michigan State University, East Lansing)
Can. J. Bot. 56(1): 91-100. January 1978
- 4157 • Apothecial Ontogeny in *Pulvinula tetraspora* (Pezizales: Ascomycetes)
K. L. O'Donnell and G. R. Hooper¹
(¹Center for Electron Optics, Michigan State University, East Lansing)
Can. J. Bot. 56(1): 101-106. January 1978

- 4158 • Production of α -Galactosidase from *Aspergillus awamori*: Properties and Action on Para-Nitrophenyl α -D-Galactopyranoside and Galacto-Oligosaccharides of Soy Milk
John E. McGhee, Robert Silman, and E. B. Bagley
J. Am. Oil Chem. Soc. 55(2): 244-247. February 1978
- 4159 • Flavor Score Correlation with Pentanal and Hexanal Contents of Vegetable Oil
K. Warner, C. D. Evans, G. R. List, H. P. Dupuy,¹
J. I. Wadsworth,¹ and G. E. Goheen¹
(¹Southern Regional Research Center, AR-SEA, USDA, New Orleans, La.)
J. Am. Oil Chem. Soc. 55(2): 252-256. February 1978
- 4160 • Removal of Phosphorus and Iron by Commercial Degumming of Soybean Oil
G. R. List, C. D. Evans, L. T. Black, and T. L. Mounts
J. Am. Oil Chem. Soc. 55(2): 275-276. February 1978
- 4161 • Steam-Refined Soybean Oil: I. Effect of Refining and Degumming Methods on Oil Quality
G. R. List, T. L. Mounts, K. Warner, and A. J. Heakin
J. Am. Oil Chem. Soc. 55(2): 277-279. February 1978
- 4162 • Steam-Refined Soybean Oil: II. Effect of Degumming Methods on Removal of Prooxidants and Phospholipids
G. R. List, T. L. Mounts, and A. J. Heakin
J. Am. Oil Chem. Soc. 55(2): 280-284. February 1978
- 4163 • Secondary-Fiber Furnishes. Some Environmental Aspects of Residual Surface Sizes
G. E. Hamerstrand, B. S. Phillips, J. C. Rankin, H. D. Heath, M. I. Schulte, and B. T. Hofreiter
Tappi 61(1): 81-84. January 1978
- 4164 • Wild Rice as Fermentation Substrate for Mycotoxin Production
L. A. Lindenfelser, A. Ciegler, and C. W. Hesseltine
Appl. Environ. Microbiol. 35(1): 105-108. January 1978

- 4165 • *Crotalaria juncea*--Annual Source of Papermaking Fiber
R. L. Cunningham, T. F. Clark, and M. O. Bagby
Tappi 61(2): 37-39. February 1978
- 4166 • Aflatoxin Control During Plant Growth and Harvest of Corn
E. B. Lillehoj and C. W. Hesseltine
In "Mycotoxins in Human and Animal Health," eds. J. V. Rodricks,
C. W. Hesseltine, and M. A. Mehlman, Proc. Conf., College Park,
Md., October 4-8, 1976, pp. 107-119. 1977
- 4167 • Assay Methods for Zearalenone and Its Natural Occurrence
O. L. Shotwell
In "Mycotoxins in Human and Animal Health," eds. J. V. Rodricks,
C. W. Hesseltine, and M. A. Mehlman, Proc. Conf., College Park,
Md., October 4-8, 1976, pp. 403-413. 1977
- 4168 • Patulin
A. Ciegler
In "Mycotoxins in Human and Animal Health," eds. J. V. Rodricks,
C. W. Hesseltine, and M. A. Mehlman, Proc. Conf., College Park,
Md., October 4-8, 1976, pp. 609-624. 1977
- 4169* • Treatment of Electroless Nickel Plating Rinse Waters
R. E. Wing, W. E. Rayford, and W. M. Doane
Met. Finish. 76(1): 54-57. January 1978
- 4170 • Determination of Oligosaccharides in Soybeans by High Pressure
Liquid Chromatography Using an Internal Standard
L. T. Black and E. B. Bagley
J. Am. Oil Chem. Soc. 55(2): 228-232. February 1978
- 4171* • Starch-Based Products Effective in Heavy Metal Removal
R. E. Wing and W. E. Rayford
Proc. 31st Ind. Waste Conf., Purdue Univ., Lafayette, Ind.,
May 4-6, 1976, pp. 1068-1079. 1977
- 4172 • Specific Composition of Representative Feedlot Wastes:
A Chemical and Microbial Profile
G. R. Hrubant, R. A. Rhodes, and J. H. Sloneker
Northern Regional Research Center, AR-SEA, USDA, Peoria, Ill.
SEA-NC-59, 94 pp. February 1978

- 4173 • Molecular Weights of Wheat γ_2 -, β_6 -, α_7 -, α_8 - and α_9 -Gliadins
Kenneth R. Sexson, Y. Victor Wu, Floyd R. Huebner, and
Joseph S. Wall
Biochim. Biophys. Acta 532(2): 279-285. February 1978

- 4174 • Starch: Renewable Raw Material for the Chemical Industry
William M. Doane
J. Coat. Technol. 50(636): 88-98. January 1978

- 4175 • Aflatoxin Inactivation in Corn by Aqua Ammonia
O. L. Brekke, A. J. Peplinski, and E. B. Lancaster
Trans. ASAE 20(6): 1160-1168. November-December 1977

- 4176 • Alkyd Resins Modified with Tetrafluoroethylene Adduct of
Conjugated Linseed Fatty Acids
E. W. Bell and L. E. Gast
J. Coat. Technol. 50(636): 81-87. January 1978

- 4177 • Conversion of Methyl 9(10)-Formylstearate to Carboxymethyl-
stearate
E. J. Dufek
J. Am. Oil Chem. Soc. 55(3): 337-339. March 1978

- 4178 • Flavor and Oxidative Stability of Hydrogenated and
Unhydrogenated Soybean Oils: Effects of Antioxidants
T. L. Mounts, K. A. Warner, G. R. List, J. P. Friedrich,
and S. Koritala
J. Am. Oil Chem. Soc. 55(3): 345-349. March 1978

- 4179 • Metabolism of Linoleate versus Linoelaidate in the Laying Hen
Alan C. Lanser, T. L. Mounts, and E. A. Emken
Lipids 13(2): 103-109. February 1978

- 4180* • Complement Activity, Serum Protein, and Hepatic Changes in
Guinea Pigs Given Sterigmatocystin or Aflatoxin, Alone or
in Combination
J. L. Richard,¹ J. R. Thurston,¹ E. B. Lillehoj, S. J. Cysewski,¹
and G. D. Booth¹
(¹National Animal Disease Center, ARS, USDA, Ames, Iowa)
Am. J. Vet. Res. 39(1): 163-166. January 1978

- 4181 • Acetylene Reduction Activity in Free-Living Cultures of Rhizobia
T. Kaneshiro, C. D. Crowell, and R. F. Hanrahan, Jr.
Int. J. Syst. Bacteriol. 28(1): 27-31. January 1978
- 4182 • Methylene-*bis*-Propionate Preservation of High-Moisture Corn
R. J. Bothast, L. T. Black, L. L. Wilson,¹ and E. E. Hatfield¹
(¹University of Illinois, Urbana)
J. Anim. Sci. 46(2): 484-489. February 1978
- 4183 • Drier Composition and Yellowing of Linseed Oil Films
Henry Rakoff, William F. Kwolek, and Lyle E. Gast
J. Coat. Technol. 50(637): 51-55. February 1978
- 4184* • Detoxification of Aflatoxin-Contaminated Agricultural Commodities
Alex Ciegler
In "Toxins: Animal, Plant and Microbial," ed. P. Rosenberg,
Proc. 5th Int. Symp., San Jose, Costa Rica, August 8-13, 1976,
pp. 729-738. 1978
- 4185 • Phytic Acid Removal from Soybeans by a Lipid Protein Concentrate Process
J. R. Ford, G. C. Mustakas, and R. D. Schmutz
J. Am. Oil Chem. Soc. 55(4): 371-374. April 1978
- 4186 • Direct Analysis of Trivernolin by High-Performance Liquid Chromatography
R. D. Plattner, K. Wade, and R. Kleiman
J. Am. Oil Chem. Soc. 55(4): 381-382. April 1978
- 4187 • Laboratory-Scale Continuous Hydrogenation
Janet M. Snyder, H. J. Dutton, and C. R. Scholfield
J. Am. Oil Chem. Soc. 55(4): 383-386. April 1978
- 4188* • Cereal Grains as a Source of Industrial Energy
Dwight L. Miller
In "Encyclopedia of Food Science," eds. Martin S. Peterson and Arnold H. Johnson, vol. 3, pp. 141-145. 1978

- 4189* • Lecithin
W. J. Wolf and D. J. Sessa
In "Encyclopedia of Food Science," eds. Martin S. Peterson and Arnold H. Johnson, vol. 3, pp. 461-467. 1978
- 4190* • Lipid Hydroperoxides and Their Degradation
H. W. Gardner
In "Encyclopedia of Food Science," eds. Martin S. Peterson and Arnold H. Johnson, vol. 3, pp. 467-472. 1978
- 4191* • Miracle Fruit
George E. Inglett
In "Encyclopedia of Food Science," eds. Martin S. Peterson and Arnold H. Johnson, vol. 3, pp. 521-523. 1978
- 4192* • An Overview of Research on Linseed Oil for Industrial Products
L. E. Gast
Proc. 45th Annu. Flax Inst. U.S., Brookings, S. Dak., Nov. 13-14, 1975, pp. 18-20. [1976]
- 4193* • Potential Industrial Products from Linseed Oil
L. E. Gast
Proc. 46th Annu. Flax Inst. U.S., Minot, N. Dak., Nov. 11-12, 1976, pp. 1-3. [1977]
- 4194* • Milling and Air-Classification of Alkali-Peeled Wheats
A. C. Stringfellow, L. H. Burbridge, V. F. Pfeifer, and O. L. Brekke
Milling Feed and Fertiliser 161(2): 35-39. February 1978
- 4195* • Glucosinolates in Cruciferous Plants
Cecil H. VanEtten and Harvey L. Tookey
In "Effects of Poisonous Plants on Livestock," pp. 507-520. 1978
- 4196 • Selective Hydrogenation of Soybean Oil: IX. Effect of Pressure in Copper Catalysis
T. L. Mounts, S. Koritala, J. P. Friedrich, and H. J. Dutton
J. Am. Oil Chem. Soc. 55(4): 402-406. April 1978

- 4197 • Commercial and Potential Utilization of Lipxygenase
E. A. Emken
J. Am. Oil Chem. Soc. 55(4): 416-421. April 1978
- 4198 • Fractionation and Characterization of Alcohol-Soluble Reduced Corn Endosperm Glutelin Proteins
J. W. Paulis and J. S. Wall
Cereal Chem. 54(6): 1223-1228. November-December 1977
- 4199 • Formation of *trans*-12,13-Epoxy-9-hydroperoxy-*trans*-10-octadecenoic Acid from 13-L-Hydroperoxy-*cis*-9,*trans*-11-octadecadienoic Acid Catalyzed by Either a Soybean Extract or Cysteine-FeCl₃
H. W. Gardner, D. Weisleder, and R. Kleiman
Lipids 13(4): 246-252. April 1978
- 4200 • Cyclopropene Fatty Acids of Selected Seed Oils from Bombacaceae, Malvaceae, and Sterculiaceae
M. B. Bohannon and R. Kleiman
Lipids 13(4): 270-273. April 1978
- 4201* • Microstructure Research as a Basis for Engineered Food Systems
Walter J. Wolf
MIT/NSF Workshop on Critical Needs in Food Science and Engineering, September 11-12, 1975, vol. 2, Conf. Papers (pages unnumbered), 27 pp. 1976
- 4202* • Use of Spent Pickle Liquor in Waste Treatment. Evaluation of Electroless Copper and Copper Etchant
R. E. Wing and W. E. Rayford
Met. Finish. 76(3): 31-33. March 1978
- 4203 • A New Biodegradable Plastic Made from Starch Graft Poly(methyl acrylate) Copolymer
Ronald J. Dennenberg, Rodney J. Bothast, and Thomas P. Abbott
J. Appl. Polym. Sci. 22(2): 459-465. February 1978
- 4204 • A New *Saccobolus* from Michigan
K. L. O'Donnell
Mycologia 70(1): 189-192. January-February 1978

- 4205 • Starch Xanthide Styrene-Butadiene Rubbers. Effect of Humidity and Outdoor Weathering
R. A. Buchanan, J. McBrien, F. H. Otey, and C. R. Russell
Staerke 30(3): 91-96. March 1978
- 4206 • Protein Concentrate from Normal and High-Lysine Sorghums: Preparation, Composition, and Properties
Y. Victor Wu
J. Agric. Food Chem. 26(2): 305-309. March-April 1978
- 4207 • Protein Quality of Wild Rice
H. L. Wang, E. W. Swain, C. W. Hesseltine, and M. R. Gumbmann¹
(¹Western Regional Research Center, AR-SEA, USDA, Berkeley, Calif.)
J. Agric. Food Chem. 26(2): 309-312. March-April 1978
- 4208 • Detoxification of Aflatoxin-Contaminated Corn by Roasting
H. F. Conway, R. A. Anderson, and E. B. Bagley
Cereal Chem. 55(1): 115-117. January-February 1978
- 4209* • Disulfide Bonds: Key to Wheat Protein Functionality
F. R. Huebner, J. A. Bietz, and J. S. Wall
In "Protein Crosslinking. Biochemical and Molecular Aspects,"
ed. Mendel Friedman, pp. 67-88. 1977
- 4210* • Soybean Oil--The Ugly Duckling of the Soybean Industry
H. J. Dutton
J. Am. Oil Chem. Soc. 55(3): 195A-196A. March 1978
- 4211 • Publications and Patents of the Northern Regional Research Center, January-December 1977
North. Reg. Res. Center, AR-SEA, USDA, 52 pp. [1978]
- 4212 • 9,9(10,10)-Bis(acetoxymethyl)octadecanoate Esters as Plasticizers for Poly(vinyl chloride)
W. R. Miller, E. H. Pryde, and G. R. Riser¹
(¹Eastern Regional Research Center, AR-SEA, USDA, Philadelphia, Pa.)
J. Am. Oil Chem. Soc. 55(5): 469-470. May 1978

- 4213 • Double Bond Analysis of Dienoic Fatty Acids in Mixtures
A. E. Johnston, H. J. Dutton, C. R. Scholfield, and
R. O. Butterfield
J. Am. Oil Chem. Soc. 55(5): 486-490. May 1978
- 4214* • Corn and Sorghum Grain Proteins
J. S. Wall and J. W. Paulis
Adv. Cereal Sci. Technol. 2: 135-219. 1978
- 4215 • Kenaf. A Practical Fiber Resource
M. O. Bagby
TAPPI Press Report, "Nonwood Plant Fiber Pulping, Progress
Report No. 8," pp. 75-80. Atlanta, Ga. 1977
- 4216* • Toxicity of the *Bacillus thuringiensis* Paraspore to Japanese
Beetle Larvae: Susceptibility, Mid-Gut pH, and Some Histo-
pathological Effects
Eugene S. Sharpe
Proc. 1st Int. Colloq. Invertebr. Pathol. and 9th Annu. Mtg.
Soc. Invertebr. Pathol., Queen's Univ., Kingston, Ontario,
Canada, Aug. 29-Sept. 2, 1976, pp. 418-419. 1976
- 4217* • Structural Analysis of Polyunsaturated Fatty Acids
Cecil R. Smith, Jr.
In "Polyunsaturated Fatty Acids," eds. W-H. Kunau and R. T.
Holman, chap. 6, pp. 81-103. 1977
- 4218* • 2-Word Integer to Floating Point Conversion
Roy O. Butterfield
MUSE News, p. 14. January 1978 (Modcomp User Exchange,
4620 W. Commercial Blvd., Tamarac, Florida)
- 4219* • Energy from Agriculture
Dwight L. Miller
In "Energy in Minnesota: Energy Technology Information for
Decision Makers," Workshop Proc., Carleton College, Northfield,
Minn., Aug. 14-16, 1977, pp. 159-172. 1978

- 4220* • Preservation of High-Moisture Corn
 R. J. Bothast and E. E. Hatfield¹
 (¹University of Illinois, Urbana)
 Proc. 1977 Corn Quality Conf., University of Illinois, Urbana,
 AE-4454, p. 42. February 1978
- 4221* • Aflatoxin B₁ and G₁ Production in Developing *Zea mays* Kernels
 from Mixed Inocula of *Aspergillus flavus* and *A. parasiticus*
 O. H. Calvert,¹ E. B. Lillehoj, W. F. Kwolek, and M. S. Zuber¹
 (¹University of Missouri Agricultural Experiment Station,
 Columbia)
 Phytopathology 68(3): 501-506. March 1978
- 4222* • Basic Food Science and Technology Problems Affecting the
 Properties and Processing of Protein Resources
 ChoKyun Rha,¹ James Flink,¹ Nicholas Catsimpoolas,¹ Marcus Karel,¹
 Anthony Sinskey,¹ Steven Tannenbaum,¹ Daniel I. C. Wang,¹
 Dean Hsieh,¹ Sidney J. Circle,² Warren E. Hartman,³ Wilda H.
 Martínez,⁴ Herbert Schoen,⁵ and Walter J. Wolf
 (¹Massachusetts Institute of Technology, Cambridge; ²404 Lawndale
 Ave., Richardson, Texas; ³Worthington Food Div., Miles Laboratories,
 Inc., Worthington, Ohio; ⁴Beltsville Agricultural Research Center
 (North), ARS-USDA, Beltsville, Md.; ⁵General Foods Corp., White
 Plains, N.Y.)
 In "Protein Resources and Technology," eds. Max Milner,
 Nevin S. Scrimshaw, and Daniel I. C. Wang, pp. 184-194. 1978
- 4223* • Cereal Proteins from Grain Processing
 J. E. Cluskey, D. A. Fellers,¹ G. E. Inglett, H. C. Nielsen,
 Y. Pomeranz,² R. L. Roberts,¹ R. M. Saunders,¹ A. D. Shepherd,¹
 J. S. Wall, and Y. V. Wu
 (¹Western Regional Research Center, AR-SEA, USDA, Berkeley, Calif.;
²U.S. Grain Marketing Research Center, AR-SEA, USDA, Manhattan,
 Kan.)
 In "Protein Resources and Technology," eds. Max Milner,
 Nevin S. Scrimshaw, and Daniel I. C. Wang, pp. 256-277. 1978
- 4224 • Rheological and Other Physical Characteristics of Polysaccharides
 from Two Black Yeast-Like Fungi
 P. A. Sandford, J. E. Pittsley, P. R. Watson, K. A. Burton,
 M. C. Cadmus, and A. Jeanes
 J. Appl. Polym. Sci. 22(3): 701-710. March 1978

- 4225* • Annual Crops: A Resource from Solar Energy
Dwight L. Miller
AIChE Symp. Ser. 172, 74: 73-76. 1978
- 4226 • Characteristics of the Constituent Substrains of *Bacillus popilliae* Growing in Batch and Continuous Cultures
E. S. Sharpe and Lee A. Bulla, Jr.¹
(¹U.S. Grain Marketing Research Laboratory, AR-SEA, USDA, Manhattan, Kan.)
Appl. Environ. Microbiol. 35(3): 601-609. March 1978
- 4227 • Incidence of Airborne *Aspergillus flavus* Spores in Cornfields of Five States
R. J. Bothast, L. R. Beuchat,¹ B. S. Emswiler,² M. G. Johnson,³ and M. D. Pierson⁴
(¹University of Georgia AES, Experiment; ²Meat Science Research Laboratory, SEA, USDA, Beltsville, Md.; ³Clemson University, Clemson, S. Car.; ⁴Virginia Polytechnic Institute and State University, Blacksburg)
Appl. Environ. Microbiol. 35(3): 627-628. March 1978
- 4228 • γ -Glutamyl Dipeptide Content in Soybean Protein Products and Other Commodities
L. C. Wang, J. F. Cavins, and W. J. Wolf
J. Food Sci. 43(3): 740-742, 745. May-June 1978
- 4229 • Density Separation of Protein from Oat Flour in Nonaqueous Solvents
J. E. Cluskey, Y. V. Wu, and J. S. Wall
J. Food Sci. 43(3): 783-786. May-June 1978
- 4230 • Fungi, Especially *Gibberella zeae*, and Zearalenone Occurrence in Wheat
C. W. Hesseltine, R. F. Rogers, and Odette Shotwell
Mycologia 70(1): 14-18. January-February 1978
- 4231 • The *Zygorhynchus* Zygosporangium and Zygosporangium
K. L. O'Donnell, S. L. Flegler,¹ J. J. Ellis, and C. W. Hesseltine
(¹Center for Electron Optics, Michigan State University, East Lansing)
Can. J. Bot. 56(8): 1061-1073. April 1978

- 4232 • Reactions of Lipids in Corn with Ammonia
L. T. Black, G. F. Spencer, and O. L. Brekke
J. Am. Oil Chem. Soc. 55(6): 526-529. June 1978
- 4233 • Factor for Converting Elemental Phosphorus to Acetone Insolubles in Crude Soybean Oil
G. R. List, A. J. Heakin, C. D. Evans, L. T. Black, and T. L. Mounts
J. Am. Oil Chem. Soc. 55(6): 521-522. June 1978
- 4234 • Trichothecenes: Occurrence and Toxicoses
A. Ciegler
J. Food Prot. 41(5): 399-403. May 1978
- 4235* • Aromatic Compounds and Sugars in Flocculation of *Saccharomyces cerevisiae*
Neil W. Taylor and William L. Orton
J. Inst. Brew. 84: 113-114. March-April 1978
- 4236 • Inhibition of RNA Polymerase from *Bacillus thuringiensis* and *Escherichia coli* by β -Exotoxin
Donovan E. Johnson
Can. J. Microbiol. 24(5): 537-543. May 1978
- 4237* • Polymer
William M. Doane
McGraw-Hill Yearbook of Science and Technology, pp. 301-303. 1978
- 4238 • Aflatoxin Formation on Sixteen Soybean Varieties
Odette L. Shotwell, Elsie E. Vandegraft, and Clifford W. Hesseltine
J. Assoc. Off. Anal. Chem. 61(3): 574-577. May 1978
- 4239 • An Intensely Sweet Analogue of Phyllostulcin: 2-(3-Hydroxy-4-methoxyphenyl)-1,3-benzodioxan
William E. Dick, Jr. and John E. Hodge
J. Agric. Food Chem. 26(3): 723-725. May-June 1978

- 4240 • Determination of Salt Content of Sauerkraut by Cation Exchange
Cecil H. VanEtten
J. Agric. Food Chem. 26(3): 776. May-June 1978

- 4241 • Processes for Heavy Metal Removal from Plating Wastewaters
R. E. Wing
Proc. First Annu. Conf. on Advanced Pollution Control for the
Metal Finishing Industry, Lake Buena Vista, Fla., Jan. 17-19, 1978,
EPA-600/8-78-010, pp. 92-106. May 1978

- 4242 • Dextran Bibliography. Extensive Coverage of Research Literature
(Exclusive of Clinical) and Patents, 1861-1976
Allene Jeanes
USDA Misc. Publ. No. 1355, 368 pp. April 1978

- 4243 • High-Pressure Liquid Chromatography of Autoxidized Lipids:
I. Methyl Oleate and Linoleate
W. E. Neff, E. N. Frankel, C. R. Scholfield, and D. Weisleder
Lipids 13(6): 415-421. June 1978

- 4244 • Starch Polyampholytes with Amine and Xanthate Substituents:
Characterization and Application
M. E. Carr, B. T. Hofreiter, and C. R. Russell
J. Appl. Polym. Sci. 22(4): 897-904. April 1978

- 4245 • Swelling and Rheology of Saponified Starch-*g*-Polyacrylonitrile
Copolymers. Effect of Starch Granule Pretreatment and Grafted
Chain Length
N. W. Taylor, G. F. Fanta, W. M. Doane, and C. R. Russell
J. Appl. Polym. Sci. 22(5): 1343-1357. May 1978

- 4246 • Preparation of Insoluble Cationic Starches and Their Use
in Heavy Metal Anion Removal
R. E. Wing, W. E. Rayford, W. M. Doane, and C. R. Russell
J. Appl. Polym. Sci. 22(5): 1405-1416. May 1978

- 4247 • Flash Polarographic Detection of Superoxide Production as a Means
of Monitoring Electron Flow Between Photosystems I and II
Paul A. Jursinic
FEBS Lett. 90(1): 15-20. June 1978

- 4248 • Separation of Saturated, Unsaturated, and Acetylenic Fatty Acid Isomers by Silver Resin Chromatography
E. A. Emken, J. C. Hartman, and C. R. Turner
J. Am. Oil Chem. Soc. 55(7): 561-563. July 1978

- 4249 • Silver Resin Chromatographic Separation of Methyl *cis*- and *trans*-Mono- and Dihydroxy Fatty Esters
Henry Rakoff and Edward A. Emken
J. Am. Oil Chem. Soc. 55(7): 564-566. July 1978

- 4250 • *cis*-Bond-Producing Hydrogenation of Polyunsaturates Catalyzed by Polymer-Complexed $\text{Cr}(\text{CO})_3$ Catalysts
R. A. Awl, E. N. Frankel, J. P. Friedrich, and E. H. Pryde
J. Am. Oil Chem. Soc. 55(7): 577-582. July 1978

- 4251 • Flame-Resistant Polyurethane Foams Derived from Methyl Glucoside Polyethers
Felix H. Otey, Carl A. Wilham, and Charles R. Russell
Ind. Eng. Chem. Prod. Res. Dev. 17(2): 162-164. June 1978

- 4252 • 6-D-Glucopyranosyl Fatty Acid Esters from *Brassica napus* Pollen
Michael D. Grove, Gayland F. Spencer, Philip E. Pfeffer,¹
Nagabhushanam Mandava,² J. David Warthen, Jr.,² and
Joseph F. Worley²
(¹Eastern Regional Research Center, AR-SEA, USDA, Philadelphia, Pa.;
²Beltsville Agric. Res. Center, AR-SEA, USDA, Beltsville, Md.)
Phytochemistry 17(7): 1187-1189. July 1978

- 4253 • Insoluble Starch Xanthate: Preparation, Stabilization, Scaleup and Use
R. E. Wing, B. K. Jasberg, and L. L. Navickis
Staerke 30(5): 163-170. May 1978

- 4254 • Microbiology of Corn Fermented with Swine Waste
Lawrence K. Nakamura and Clarence D. Crowell
Dev. Ind. Microbiol. 19: 395-402. 1978

- 4255 • L-Serine Dehydratase Production by *Pseudomonas delafieldii*
G. E. N. Nelson and R. E. Peterson
Dev. Ind. Microbiol. 19: 451-457. 1978

- 4256* • Production of Microbial Polysaccharides
M. E. Slodki and M. C. Cadmus
Adv. Appl. Microbiol. 23: 19-54. 1978

- 4257 • Patent Deposition of Microorganisms: Agricultural Research Service
Lawrence K. Nakamura
Dev. Ind. Microbiol. 19: 161-167. 1978

- 4258 • Effect of Alkaline Processing of Corn on Its Amino Acids
J. Sanderson, J. S. Wall, G. L. Donaldson, and J. F. Cavins
Cereal Chem. 55(2): 204-213. March-April 1978

- 4259 • Separation of Xanthan Gums of Differing Pyruvate Content by Fractional Precipitation with Alcohol
Paul A. Sandford, Paul R. Watson, and Clarence A. Knutson
Carbohydr. Res. 63: 253-256. June 1978

- 4260 • Thermal Decomposition of Methyl Oleate Hydroperoxides and Identification of Volatile Components by Gas Chromatography-Mass Spectrometry
E. Selke, E. N. Frankel, and W. E. Neff
Lipids 13(7): 511-513. July 1978

- 4261 • ^{13}C Nuclear Magnetic Resonance Spectroscopy of Cyanolipids and Cyanolipid-Containing Seed Oils
K. L. Mikolajczak and D. Weisleder
Lipids 13(7): 514-516. July 1978

- 4262 • Flavor Problems in the Usage of Soybean Oil and Meal
H. J. Dutton
ACS Symp. Ser. No. 75: 81-93. 1978

- 4263 • Synthetic Media for Production of Quality Xanthan Gum in 20 Liter Fermentors
M. C. Cadmus, C. A. Knutson, A. A. Lagoda, J. E. Pittsley, and K. A. Burton
Biotechnol. Bioeng. 20(7): 1003-1014. July 1978

- 4264 • Cornmeal/Peanut Flour Blends and Their Characteristics
G. N. Bookwalter, K. Warner, R. A. Anderson, and E. B. Bagley
J. Food Sci. 43(4): 1116-1120. July-August 1978
- 4265 • Ultrasonic Peptization of Soybean Proteins from Autoclaved Flakes, Alcohol-Washed Flakes and Commercial Samples
L. C. Wang
J. Food Sci. 43(4): 1311-1313. July-August 1978
- 4266 • Biopolymer Formation by Activated Sludge in the Presence of Methanol
Edwin N. Davis
Trans. Ill. State Acad. Sci. 70(1): 80-85. 1977
- 4267 • Acidimetric Estimation of Xanthate in Starch
C. L. Swanson and R. A. Buchanan
Staerke 30(6): 206-207. June 1978
- 4268 • Optical Brighteners--Their Effect on the Yellow Appearance of Linseed Oil Paint
Henry Rakoff and Lyle E. Gast
J. Coat. Technol. 50(642): 84-85. July 1978
- 4269 • Ring Contraction Products from 2,3-Dihydro-3,5-dihydroxy-6-methyl-4(H)-pyran-4-one: 4-Hydroxy-5-hydroxymethyl-2-methyl-3(2H)-furanone and 2,5-Dimethyl-4-hydroxy-3(2H)-furanone
Frank D. Mills
J. Agric. Food Chem. 26(4): 894-898. July-August 1978
- 4270 • Absorbent Polymers from Starch and Flour Through Graft Polymerization of Acrylonitrile and Comonomer Mixtures
G. F. Fanta, R. C. Burr, W. M. Doane, and C. R. Russell
Staerke 30(7): 237-242. July 1978
- 4271* • Removal of Heavy Metals from Industrial Wastewaters Using Insoluble Starch Xanthate
R. E. Wing, L. L. Navickis, B. K. Jasberg, and W. E. Rayford
Environ. Prot. Technol. Ser., EPA-600/2-78-085, 106 pp. National Technical Information Service, Springfield, Va. May 1978

- 4272 • Mycoviruses of *Penicillium stoloniferum*: Influence of Carbon-Nitrogen Nutrition Upon Replication
R. W. Detroy, D. M. DeMarini, and P. E. Still
Can. J. Microbiol. 24(8): 947-953. August 1978
- 4273* • Solid State Fermentation--Part 2
C. W. Hesseltine
Process Biochem. 12(9): 29-30, 32. November 1977
- 4274 • Temperature Dependence of Delayed Light Emission in the 6 to 340 Microsecond Range After a Single Flash in Chloroplasts
P. Jursinic and Govindjee¹
(¹University of Illinois, Urbana)
Photochem. Photobiol. 26(6): 617-628. December 1977
- 4275 • Microbiological Study of Exported Soybeans
C. W. Hesseltine, R. F. Rogers, and R. J. Bothast
Cereal Chem. 55(3): 332-340. May-June 1978
- 4276 • Note on Vitamins and Minerals of Wild Rice
E. W. Swain, H. L. Wang, and C. W. Hesseltine
Cereal Chem. 55(3): 412-414. May-June 1978
- 4277 • Cubing Increases Density of Kenaf
Dennis J. DaVia,¹ Marvin O. Bagby, Buren A. Wolf,¹
Paulden F. Knowles,¹ and John R. Goss¹
(¹University of California, Davis)
Calif. Agric. 32(9): 11-12. September 1978
- 4278 • Zearalenone: Distribution in Wet-Milling Fractions from Contaminated Corn
G. A. Bennett, E. E. Vandegraft, O. L. Shotwell, S. A. Watson,¹
and B. J. Bocan¹
(¹Moffett Technical Center, CPC International, Argo, Ill.)
Cereal Chem. 55(4): 455-461. July-August 1978
- 4279 • Composition of a By-Product of Wild Rice Processing
L. L. Navickis and R. A. Anderson
Cereal Chem. 55(4): 544-546. July-August 1978

- 4280 • Low-Pressure Hydroformylation of Methyl Oleate with an Activated Rhodium Catalyst
J. P. Friedrich
Ind. Eng. Chem. Prod. Res. Dev. 17(3): 205-207. September 1978
- 4281 • Potential Intense Sweeteners of Natural Origin
George E. Inglett
In "Sweeteners and Dental Caries," Proc. Conf., Durham, New Hampshire, October 24-26, 1977, pp. 327-337. 1978
- 4282 • Aflatoxin in Corn: A Note on Ineffectiveness of Several Fumigants as Inactivating Agents
O. L. Brekke and A. C. Stringfellow
Cereal Chem. 55(4): 518-520. July-August 1978
- 4283 • Separation and Structure Determination of Jojoba Oil Components by High-Pressure Liquid Chromatography and Gas Chromatography/Mass Spectrometry
Thomas K. Miwa, Gayland F. Spencer, and Ronald D. Plattner
Proc. Second Int. Conf. on Jojoba and Its Uses, Ensenada, Baja California Norte, Mexico, February 10-12, 1976, pp. 187-197. September 1978
- 4284 • Crystallographic Study of Hydrogenated Jojoba Wax and Its Relationship to Polyethylene
T. D. Simpson and T. K. Miwa
Proc. Second Int. Conf. on Jojoba and Its Uses, Ensenada, Baja California Norte, Mexico, February 10-12, 1976, pp. 199-218. September 1978
- 4285 • Correlation Between Density and Oil Content in Jojoba Nuts Harvested at Different Geographical Regions
Thomas K. Miwa and Paul H. Thomson¹
(¹Star Route, Bonsall, Calif.)
Proc. Second Int. Conf. on Jojoba and Its Uses, Ensenada, Baja California Norte, Mexico, February 10-12, 1976, pp. 219-228. September 1978

- 4286 • Composition of Jojoba Oil from Nuts Harvested at Different Geographical Regions
Thomas K. Miwa and Gayland F. Spencer
Proc. Second Int. Conf. on Jojoba and Its Uses, Ensenada, Baja California Norte, Mexico, February 10-12, 1976, pp. 229-243.
September 1978
- 4287 • Physical and Chemical Properties of Jojoba Liquid and Solid Waxes
Thomas K. Miwa and James W. Hagemann
Proc. Second Int. Conf. on Jojoba and Its Uses, Ensenada, Baja California Norte, Mexico, February 10-12, 1976, pp. 245-252.
September 1978
- 4288 • Sulfurized Jojoba Oil as Extreme-Pressure Lubricant
Thomas K. Miwa and John A. Rothfus
Proc. Second Int. Conf. on Jojoba and Its Uses, Ensenada, Baja California Norte, Mexico, February 10-12, 1976, pp. 253-264.
September 1978
- 4289 • Hardness Test for Wax Formulations from Jojoba Wax, Paraffin, Polyethylene and Polypropylene
Thomas K. Miwa
Proc. Second Int. Conf. on Jojoba and Its Uses, Ensenada, Baja California Norte, Mexico, February 10-12, 1976, pp. 265-274.
September 1978
- 4290* • Wild Rice: Its History, Current Production, Use
R. A. Anderson
Rice J. 81(7): 34-38. July-August 1978
- 4291 • Dry Processed Cationic Starches and Flours. Performance in Kraft Bag and Filled Bond Paper
G. E. Hamerstrand, B. S. Phillips, J. C. Rankin, and B. T. Hofreiter
Tappi 61(9): 59-61. September 1978
- 4292 • Production and Analysis of Citrinin in Corn
L. K. Jackson and A. Ciegler
Appl. Environ. Microbiol. 36(3): 408-411. September 1978

- 4293* • Factors Affecting Aflatoxin Production on Different Agricultural Commodities
C. W. Hesseltine
Proc. U.S. Aflatoxin Delegation Meeting, Zurich, Switzerland, March 20-21, 1978, pp. 152-165. 1978

- 4294* • Scanning Electron Microscopy of Marine Antifouling Paint Films
F. L. Baker, L. H. Princen, and Max Kronstein¹
(¹Manhattan College, Riverdale, N.Y.)
Proc. 5th Int. Symp. Controlled Release of Bioactive Materials, Gaithersburg, Md., August 14-16, 1978, pp. 7.48-7.69. 1978

- 4295* • Treating Plating Waste with ISX
R. E. Wing
Ind. Finish.(Wheaton, Ill.), pp. 38-40. October 1978

- 4296* • Use of Mycotoxin Contaminated Grain in the Ethanol Fermentation Process
E. B. Lillehoj
Proc. Distillers Feed Res. Council Conf., Louisville, Ky., March 30, 1978, vol. 33, pp. 23-29. 1978

- 4297 • Soy Protein Utilization in Food Systems
G. N. Bookwalter
In "Nutritional Improvement of Food and Feed Proteins," ed. Mendel Friedman, pp. 749-766. 1978

- 4298 • High Moisture Corn--An Extended Preservation Trial with Ammonia
A. J. Peplinski, O. L. Brekke, R. J. Bothast, and L. T. Black
Trans ASAE 21(4): 773-776, 781. 1978

- 4299 • Distribution of Aflatoxin and/or Zearalenone in Wet-Milled Corn Products: A Review
Glenn A. Bennett and Roy A. Anderson
J. Agric. Food Chem. 26(5): 1055-1060. September-October 1978

- 4300 • Triticale for Food Uses
Y. Victor Wu, A. C. Stringfellow, R. A. Anderson, K. R. Sexson, and J. S. Wall
J. Agric. Food Chem. 26(5): 1039-1048. September-October 1978

- 4301 • Purposeful Papermaking Plants: Their Identification and Pulp-
ing, Bleaching, and Papermaking Characteristics
Marvin O. Bagby
Chemistry Workshop Preprint Booklet "Utilization of Fibrous
Raw Materials," workshop held at Cairo, Egypt, Nov. 28-Dec. 8,
1977, sponsored by National Research Centre and American Chemical
Society, pp. 3-13. November 1977

- 4302 • Insect Larval Activity on Developing Corn Ears and Subsequent
Aflatoxin Contamination of Seed
D. I. Fennell, E. B. Lillehoj, W. F. Kwolek, W. D. Guthrie,¹
R. Sheeley,² A. N. Sparks,³ N. W. Widstrom,³ and G. L. Adams
(¹Ankeny Research Farm, Ankeny, Ia.; ²Delta Center, Portageville,
Mo.; ³Southern Grain Insect Research Laboratory, Georgia Coastal
Plain Experiment Station, Tifton)
J. Econ. Entomol. 71(4): 624-628. August 1978

- 4303 • Light-Scattering and Specific Refractive Increment Behavior
of Amylose and Dextran in Methyl Sulfoxide-Water
Frederick R. Dintzis and Robert Tobin
Carbohydr. Res. 66: 71-83. October 1978

- 4304 • Hydrocarbon- and Rubber-Producing Crops. Evaluation of U.S.
Plant Species
R. A. Buchanan, I. M. Cull, F. H. Otey, and C. R. Russell
Econ. Bot. 32(2): 131-145. April-June 1978

- 4305 • Hydrocarbon- and Rubber-Producing Crops. Evaluation of 100
U.S. Plant Species
R. A. Buchanan, Irene M. Cull, F. H. Otey, and C. R. Russell
Econ. Bot. 32(2): 146-153. April-June 1978

- 4306 • O-Carboxymethylstarch Amine Polyampholytes as Papermaking
Additives
W. C. Cheng¹ and M. E. Carr
(¹Paine College, Augusta, Georgia)
Staerke 30(8): 280-282. August 1978

- 4307 • Computers in the Lipid Research Laboratory
R. O. Butterfield, W. K. Rohwedder, E. D. Bitner, J. O. Ernst,
D. J. Wolf, and H. J. Dutton
Prog. Lipid Res. 17: 93-110. 1978
- 4308 • Evaluation of *Sclerotinia sclerotiorum* as a Potential
Mycotoxin Producer on Soybeans
A. Ciegler, K. A. Burbridge, J. Ciegler, and C. W. Hesseltine
Appl. Environ. Microbiol. 36(3): 533-535. September 1978
- 4309 • Treatment of Complexed Copper Rinsewaters with Insoluble
Starch Xanthate
R. E. Wing, W. E. Rayford, and W. M. Doane
Plat. Surf. Finish. 65(12): 52-57. December 1978
- 4310 • Bacillus Isolates from Refrigerated Doughs, Wheat Flour,
and Wheat
R. F. Rogers
Cereal Chem. 55(5): 671-674. September-October 1978
- 4311 • Synthesis of Methyl *cis*-9-Octadecenoate-14,14,15,15,17,18-d₆
R. O. Adlof and E. A. Emken
J. Labelled Compd. Radiopharm. 15(Suppl. Vol.): 97-104.
October 1978
- 4312 • Synthesis of Di-, Tetra-, and Hexadeuterated 11-Octadecenoates
W. J. DeJarlais and E. A. Emken
J. Labelled Compd. Radiopharm. 15(Suppl. Vol.): 451-460.
October 1978
- 4313 • Synthesis of *cis* and *trans* Methyl 8- and 13-Octadecenoate-d₂
and d₄ Isomers
R. O. Adlof, W. R. Miller, and E. A. Emken
J. Labelled Compd. Radiopharm. 15(Suppl. Vol.): 625-636.
October 1978
- 4314 • Origin of High Methionine Content in *Sugary-1* Corn Endosperm
J. W. Paulis, J. S. Wall, and J. Sanderson
Cereal Chem. 55(5): 705-712. September-October 1978

- 4315 • Temperature-Based Prediction of Egg-Mass Production by
Meloidogyne incognita
Diana G. Carlson and J. A. Rothfus
J. Nematol. 10(4): 303-307. October 1978

- 4316 • Metal-Polysaccharide Complexes. Part I
J. A. Rendleman
Food Chem. 3(1): 47-79. January 1978

- 4317 • Metal-Polysaccharide Complexes. Part II
J. A. Rendleman
Food Chem. 3(2): 127-162. April 1978

- 4318* • Isolation of Brassins by Extraction of Rape (*Brassica napus* L.)
Pollen
N. Mandava,¹ M. Kozempel,² J. F. Worley,¹ D. Matthees,¹
J. D. Warthen, Jr.,¹ M. Jacobson,¹ G. L. Steffens,¹
H. Kenney,² and M. D. Grove
(¹Beltsville Agricultural Research Center, Beltsville, Md.;
²Eastern Regional Research Center, AR-SEA-USDA, Philadelphia, Pa.)
Ind. Eng. Chem. Prod. Res. Dev. 17(4): 351-354. December 1978

- 4319 • Whole-Plant Oils, Potential New Industrial Raw Materials
R. A. Buchanan, F. H. Otey, C. R. Russell, and I. M. Cull
J. Am. Oil Chem. Soc. 55(9): 657-662. September 1978

- 4320 • Biochemical Changes in Soybeans: Maturation, Postharvest
Storage and Processing, and Germination
Joseph J. Rackis
In "Postharvest Biology and Biotechnology," eds. Herbert O.
Hultin and Max Milner, chap. 2, pp. 34-76. 1978

- 4321 • Fungal Deterioration and Related Phenomena in Cereals,
Legumes and Oilseeds
R. J. Bothast
In "Postharvest Biology and Biotechnology," eds. Herbert O.
Hultin and Max Milner, chap. 8, pp. 210-243. 1978

- 4322 • Bale Storage of Kenaf for Pulp
M. O. Bagby, T. F. Clark, W. C. Adamson,¹ G. A. White,² and R. L. Cunningham
(¹U.S. Plant Introduction Station, Savannah, Ga.; ²Germplasm Resources Laboratory, Beltsville, Md.)
TAPPI Press Report, "Nonwood Plant Fiber Pulping, Progress Report No. 9, pp. 33-39. Atlanta, Ga. 1978
- 4323 • Bioproduction of [¹⁴C]Ochratoxin A in Submerged Culture
E. B. Lillehoj, O. Aalund,¹ and B. Hald¹
(¹Royal Veterinary and Agricultural University, Copenhagen, Denmark)
Appl. Environ. Microbiol. 36(5): 720-723. November 1978
- 4324 • Survey of 1977 Crop Year Preharvest Corn for Vomitoxin
R. F. Vesonder, A. Ciegler, R. F. Rogers, K. A. Burbridge, R. J. Bothast, and A. H. Jensen¹
(¹University of Illinois, Urbana)
Appl. Environ. Microbiol. 36(6): 885-888. December 1978
- 4325 • Palmitoleic Acid in *Roureopsis obliquifoliata* (Connaraceae) Seed Oil
Gayland F. Spencer and Robert Kleiman
J. Am. Oil Chem. Soc. 55(10): 689. October 1978
- 4326 • Analysis of Fats and Oils
H. J. Dutton
J. Am. Oil Chem. Soc. 55(11): 806-808. November 1978
- 4327 • Hydrogen Sulfide Adducts of Methyl *trans,trans*-9,11-Octadecadienoate
A. W. Schwab, W. K. Rohwedder, and L. E. Gast
J. Am. Oil Chem. Soc. 55(12): 860-864. December 1978

REPUBLICATIONS

- 171* • Penicillin. VIII. Production of Penicillin in Surface Cultures

Andrew J. Moyer and Robert D. Coghill

In "Industrial Microbiology," ed. Richard W. Thoma, pp. 111-132. 1977

This is a republication of a paper originally published under the same title in the Journal of Bacteriology 51(1): 57-78 (January 1946), and is part of the series Benchmark Papers in Microbiology, Vol. 12.

- 172* • Penicillin. IX. The Laboratory Scale Production of Penicillin in Submerged Cultures by *Penicillium notatum* Westling (NRRL 832)

Andrew J. Moyer and Robert D. Coghill

In "Industrial Microbiology," ed. Richard W. Thoma, pp. 133-135. 1977

This is a republication of a paper originally published under the same title in Journal of Bacteriology 51(1): 79-93 (January 1946), and is part of the series Benchmark Papers in Microbiology, Vol. 12.

- 3361* • Sources and Management of Micro-Organisms for the Development of a Fermentation Industry

C. W. Hesseltine and W. C. Haynes

In "Industrial Microbiology," ed. Richard W. Thoma, pp. 23-48. 1977

This publication is an excerpt from the review originally published under the same title in Progr. Ind. Microbiol. 12: 1-46 (1973). The material was republished as U.S. Department of Agriculture Handbook No. 440, 38 pp. (March 1974). The paper is part of the series Benchmark Papers in Microbiology, Vol. 12.

- 3648* • Extracellular Microbial Polysaccharide-Polyelectrolytes: Properties and Applications

Allene Jeanes

In "Polyelectrolytes," eds. Kurt C. Frisch, Daniel Klempner, and Angelow V. Patsis, pp. 207-225. 1976

This paper was originally published as "Applications of Extracellular Microbial Polysaccharide-Polyelectrolytes: Review of Literature, Including Patents" in J. Polym. Sci., Symp. No. 45: 209-227 (1974).

- 4034* • Heavy Metal Removal Processes for Plating Rinse Waters
R. E. Wing and W. E. Rayford
Proc. 32nd Industrial Waste Conf., Purdue Univ., W. Lafayette,
Indiana, May 10-12, 1977, pp. 838-852. 1978

This paper was originally published under title "Heavy Metal Pollution Control in the Printed Circuit Industry" in the Proceedings of the American Electroplaters' Society, Merrimack Valley Branch, 6th Annual Printed Circuit Workshop, Danvers, Massachusetts, March 9-10, 1977.

- 4042 • Degradation of Fatty Acid Hydroperoxide by Cereals and a Legume: A Comparison
H. W. Gardner and D. J. Sessa
Ann. Technol. Agric. 26(2): 151-159. 1977

This paper was originally published in 1976 in the proceedings of the 13th World Congress of the International Society for Fat Research, held at Marseilles, France, August 30-September 4, 1976.

- 4043 • Oxygenated Fatty Acid Constituents of Soybean Phosphatidylcholines
D. J. Sessa, H. W. Gardner, R. Kleiman, and D. Weisleder
Lipids 12(7): 613-619. July 1977

This paper was originally published in 1976 under title "Oxygenated Fatty Acids from Soybean Phosphatidylcholines and Their Possible Derivation from Hydroperoxides," in the proceedings of the 13th World Congress of the International Society for Fat Research, held at Marseilles, France, on August 30-September 4, 1976, Symp. 10, Lipases and Lipoxidases from Vegetable Origin, pp. 10-45 to 10-61.

GRANT RESEARCH PUBLICATIONS

[Report of research work done by an outside agency under a grant from the U.S. Department of Agriculture and supervised by the Northern Regional Research Center.]

- 147-G* • Hexosamine Biosynthesis and Accumulation by Fungi in Liquid and Solid Media
Teena W. Cochran and John R. Vercellotti
Virginia Polytechnic Institute and State University,
Blacksburg, Virginia
Carbohydr. Res. 61: 529-543. March 1978

[Report of research work supported with funds provided by the U.S. Department of Agriculture under the authority of U.S. Public Law 480, 83rd Congress, and sponsored by the Northern Regional Research Center.]

- 377-F • Production of Opium Alkaloids from *in vitro* Tissue Culture of *Papaver rhoeas* Linn.
Pushpa Khanna and G. L. Sharma
University of Rajasthan, Jaipur, India
Indian J. Exp. Biol. 15(10): 951-952. October 1977
- 378-F • Effect of Cholesterol on *in vitro* Suspension Tissue Cultures of *Costus speciosus* (Koen) Sm., *Dioscorea floribunda* Mart. & Gal., *Solanum aviculare* Forst. & *Solanum xanthocarpum* Schard & Wendl.
Pushpa Khanna, G. L. Sharma, A. K. Rothore, and S. K. Manot
University of Rajasthan, Jaipur, India
Indian J. Exp. Biol. 15(11): 1025-1027. November 1977
- 379-F • Flavonoids from *in vitro* Seedling Callus Culture of *Trigonella foenum-graecum* Linn.
Amin Uddin, G. L. Sharma, and Pushpa Khanna
University of Rajasthan, Jaipur, India
Indian J. Pharm. 39(6): 142-143. 1977
- 380-F • Production of Free Ascorbic Acid and Effect of Exogenous Ascorbic Acid and Tyrosine on Production of Major Opium Alkaloids from *in vitro* Tissue Culture of *Papaver somniferum* Linn.
Pushpa Khanna, Renu Khanna, and Madhu Sharma
University of Rajasthan, Jaipur, India
Indian J. Exp. Biol. 16(1): 110-112. January 1978
- 381-F • Studies on Soyidli Fermentation
C. V. Ramakrishnan, L. J. Parekh, P. N. Akolkar, G. S. Rao, and S. D. Bhandari
University of Baroda, Baroda, India
Plant Foods for Man 2: 15-33. 1976

UNOFFICIAL PUBLICATIONS

[Listing of publications and patents of the Northern Regional Research Center would not be complete without including some unofficial publications. These are writings by members of the Northern Center staff and are of a public service value from the standpoint of review and updating of the literature. Reprints are not available at the Northern Regional Research Center for distribution.]

Thermodynamics of Associated Solutions--I. Alcohol-Inert Solvent Solutions

Show-An Chen¹ and Edward B. Bagley

(¹National Tsing Hua University, Hsinchu, Taiwan, Republic of China)
Chem. Eng. Sci. 33: 153-160. 1978

Thermodynamics of Association Solutions--II. Alcohol-Active Solvent Solutions

Show-An Chen¹ and Edward B. Bagley

(¹National Tsing Hua University, Hsinchu, Taiwan, Republic of China)
Chem. Eng. Sci. 33: 161-168. 1978

Viscosity, Modulus, and Die Swell of Glass Bead Filled Polystyrene-Acrylonitrile Copolymer

Pawan K. Agarwal,¹ Edward B. Bagley, and Christopher T. Hill¹

(¹Washington University, St. Louis, Missouri)
Polym. Eng. Sci. 18(4): 282-287. March 1978

PATENTS

[These patents are assigned to the Secretary of Agriculture. Copies of patents may be purchased (50 cents each) from the Commissioner of Patents and Trademarks, U.S. Patent and Trademark Office, Washington, D.C. 20231. Order by number, do not send stamps.]

Method of Producing Soybean Milk Yoghurt
Hiroshi Kanda, Hwa L. Wang, and Clifford W. Hesselstine
U.S. Patent 4,066,792. January 3, 1978

Removal of Heavy Metal Ions from Aqueous Solutions with Insoluble Crosslinked-Starch-Xanthates
Robert E. Wing and William M. Doane
U.S. Patent 4,083,783. April 11, 1978

Acetoxymethyl Derivatives of Polyunsaturated Fatty Triglycerides as Primary Plasticizers for Polyvinylchloride
Edwin N. Frankel and Everett H. Pryde
U.S. Patent 4,083,816. April 11, 1978

Xanthated Starch Amine Paper Additives
Merle E. Carr
U.S. Patent 4,093,510. June 6, 1978

Alkyl 9,9(10,10)-Bis(acyloxymethyl)octadecanoates as Primary Plasticizers for Polyvinylchloride
William R. Miller and Everett H. Pryde
U.S. Patent 4,093,637. June 6, 1978

Triglyceride Oil-Derived Water-Dispersible Urethane Resin Coatings
Wilma J. Schneider and Lyle E. Gast
U.S. Patent 4,094,838. June 13, 1978

Increasing Absorbency of Polymeric Compositions by Curing

George F. Fanta and William M. Doane

U.S. Patent 4,116,899. September 26, 1978

Preparation of Retrogradation-Resistant Starches with Immobilized Amylases

Bernard T. Hofreiter, Karl L. Smiley, and Joyce A. Boundy

U.S. Patent 4,121,974. October 24, 1978

Alkyl 9,9(10,10)-Bis(acyloxymethyl)octadecanoates as Primary Plasticizers for Polyvinylchloride

William R. Miller and Everett H. Pryde

U.S. Patent 4,124,558. November 7, 1978

Low pH Preparation of Cationic Starches and Flours

John C. Rankin and Bliss S. Phillips

U.S. Patent 4,127,563. November 28, 1978

LICENSING OF PATENTS

Many inventions and discoveries of the Northern Center are covered by patents assigned to the Secretary of Agriculture.

Assigned patents are available for use by business and industry under either nonexclusive or limited exclusive licenses. Prospective licensees may obtain an

application form (ARS Form 257) from the address shown below. The completed form should also be sent to this address: Chief, Program Agreements & Patents Management Branch, U.S. Department of Agriculture, Administrative Services Division, SEA, Federal Building, Room 525, 6505 Belcrest Road, Hyattsville, Maryland 20782.

The Northern Regional Research Center is part of the Science and Education Administration of the U.S. Department of Agriculture. Congress in 1938 authorized four regional laboratories to conduct broad and complex investigations in the field of chemistry and related physical sciences to expand and improve the marketability of agricultural commodities. The addresses and commodities covered are:

Laboratory

Principal Fields of Research

Eastern Regional Research
Center
600 East Mermaid Lane
Philadelphia, Pennsylvania 19118

Animal products: Dairy, meats, fats, and leather. Plant products: Eastern fruits and vegetables, maple and honey.

Northern Regional Research
Center
1815 North University Street
Peoria, Illinois 61604

Cereal grains: Corn, wheat, grain sorghum, oats. Oilseeds: Soybeans, flaxseed, erucic acid-containing oilseeds, and new crops.

Southern Regional Research
Center
P.O. Box 19687
New Orleans, Louisiana 70179

Cotton and cottonseed; sweet potatoes; rice; peanuts; and cane sugar.

Western Regional Research
Center
800 Buchanan Street
Berkeley, California 94710

Western fruits, tree nuts, and vegetables; egg products; forage crops; wheat, barley, rice; wool and mohair; dry beans and peas; castor beans; safflower; and Western oilseeds.

UNITED STATES DEPARTMENT OF AGRICULTURE
SCIENCE AND EDUCATION ADMINISTRATION
AGRICULTURAL RESEARCH
NORTHERN REGIONAL RESEARCH CENTER
1815 NORTH UNIVERSITY STREET
PEORIA, ILLINOIS 61604

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE
AGR-101



OFFICIAL BUSINESS

Ms. Wilma Martinez, Staff Sci.
USDA-SEA, Nat'l Program Staff

Room 224
2070

